accord with the view that longer preregistration training would exacerbate the problems house officers face.²¹ Less than a quarter of respondents would encourage potential medical students to enter the profession, although over half would recommend their job to a friend.

CONCLUSION

There are serious deficiencies in the preparation of house officers for their role and in the education they receive in post. They are often subject to excessive and inappropriate demands, working rotas incompatible with NHS Management Executive targets in hospitals that many of them regard as insecure. Unsurprisingly, few house officers would encourage others to take up medicine.

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Heterosexual transmission of HIV in injecting drug users

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Annual incidence of HIV infection among 440 injecting drug users from 1982 to 1993

Year	No of seroconversions attributed to:	
	Shared injecting equipment	Heterosexual intercourse
1982	0	0
1983	76	0
1984	49	0
1985	30	0
1986	9	0
1987	0	3
1988	0	2
1989	0	0
1990	0	0
1991	0	0
1992	0	2
1993	0	1
Total	164	8

The rapid rise in the prevalence of HIV infection among injecting drug users during the early 1980s in Edinburgh was attributed to sharing injecting equipment.¹ More recently injecting drug users in Edinburgh and other British cities have reduced their high risk behaviour,^{2,3} probably because of increased awareness of the risks of infection. We investigated whether seroconversion attributable to injecting behaviour had also declined in this population since the mid-1980s.

Subjects, methods, and results

In a longitudinal study of 440 injecting drug users 172 (119 men) were positive for HIV antibodies and 148 (104 men) were negative; 120 (86 men) were not tested for various reasons. Dates of seroconversion were estimated for the 172 infected subjects as the midpoint between the dates of the last test giving negative results for HIV antibodies and the first giving positive results. If the date of the last negative test was unknown we used 1 January 1983, which has been calculated as the first possible date that HIV could have been transmitted in Edinburgh.⁴ Seroconversion was attributed either to sharing infected injecting equipment or to heterosexual intercourse between injecting drug users. The mode of transmission was determined from self reported data obtained during follow up, from medical records, and from medical staff concerned with the patients' care.

The table shows that the incidence of HIV infection attributable to sharing injecting equipment reached a

peak in 1983 but then declined rapidly. From 1987 none of the eight seroconversions was attributable to sharing injecting equipment: all were attributable to unprotected heterosexual intercourse.

Comment

Although the annual incidence of HIV among injecting drug users has been low since 1987, it represents the emerging problem of heterosexual transmission of HIV. These rates probably underestimate the true incidence of sexually transmitted HIV infection for injecting drug users because we have not followed up any of their heterosexual contacts who do not inject drugs. There are virtually no recorded homosexual relationships in this group.

In the early '80s attention was focused on transmission of HIV by sharing injecting equipment. Transmission among injecting drug users who admitted sharing may have been attributed solely to drug use without considering heterosexual intercourse as an alternative cause. The uncertainty surrounding this issue is compounded by the reliance on self reported information.

Despite national and local campaigns to educate the public about the risks of unprotected heterosexual intercourse the regular use of condoms remains low. Even those couples at highest risk because one partner is positive for HIV often continue to have unprotected sex, possibly often with a view to achieving pregnancy (R Wyld *et al*, seventh international conference on AIDS, Florence, 1991). People generally seem unconvinced about the risks of heterosexual transmission. They receive conflicting messages, and information campaigns are undermined as members of the public increasingly gain personal experience of couples who do not practise safe sex without transmitting HIV.

HIV has already been transmitted to the next generation in the United Kingdom.⁵ In Scotland most heterosexual transmission has occurred among sexual contacts of injecting drug users. If an epidemic of HIV

in the heterosexual population is to be prevented intervention should focus primarily on injecting drug users and their partners who continue to engage in unprotected heterosexual intercourse.

Since this paper was prepared a number of seroconversions attributed to needle sharing have occurred in a Scottish prison. At least one of our group is involved.

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Postmarketing study of cardiovascular adverse reactions associated with sumatriptan

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Prevalence of cardiovascular
adverse reactions associated with
sumatriptan in 1727 patients

Adverse reaction	No (%) of patients
Chest pain	23 (1.3)
Palpitations	6 (0.35)
Hypertension	2 (0.12)
Syncope	2 (0.12)
Bradycardia	1 (0.06)*

*Also developed chest pain.

In May 1991 the serotonin-1 agonist sumatriptan was registered in the Netherlands for the treatment of acute attacks of migraine and cluster headache. In clinical trials sensations of pressure and tightness in the chest were experienced by 3% to 5% of patients, but no electrocardiographic evidence of cardiac ischaemia was found.¹ Since being marketed sumatriptan has been associated with pain like angina pectoris² and, when given subcutaneously, with chest pain accompanied by ST elevation in an electrocardiogram³ and with acute myocardial infarction in a previously healthy young woman.⁴ We conducted a postmarketing study of the prevalence of cardiovascular adverse reactions associated with sumatriptan in cooperation with dispensing general practitioners.

Patients, methods, and results

In July 1992 all 687 dispensing general practitioners in the Netherlands were asked to provide the date of birth and sex of every person to whom sumatriptan had been dispensed since it was marketed in May 1991. They were also asked about the route of administration and whether they had observed any adverse reactions in their patients. To avoid bias no specific adverse reactions were mentioned in the questionnaire. The non-responders received two reminders, 11 and 17 weeks after the first request. Information was entered into a database and results were analysed by using two tailed χ^2 and Student's *t* tests.

The request yielded a response rate of 86% (589 general practitioners). Of these, 474 had dispensed sumatriptan on at least one occasion to a total of 1727 patients (414 men (24%) and 1313 women (76%)). The mean age of the patients was 43.8 years (SD 11.2). Of the 1662 patients (96%) with information about the route of administration, 683 (41%) had taken sumatriptan orally, 842 (51%) subcutaneously, and 137 (8%) both orally and subcutaneously.

Of the 1727 patients, 185 (10.7% (95% confidence interval 9.3% to 12.1%)) had reported one or more adverse reactions, which resulted in a total of 247 adverse reactions. The mean age of the 1542 patients who did not report any adverse reactions was 43.8 (SD 11.2), and 1172 (76%) were women. The mean age of the 185 patients who reported adverse reactions was 43.3 (11.2), and 141 (76%) were women. The most frequently reported adverse reactions were dizziness, nausea or vomiting, drowsiness or sedation, and chest pain, which were reported in 30, 26, 25, and 23 patients respectively. Of the 183 patients who reported an adverse reaction and for whom date on administration were known, 81 (44%) had been given sumatriptan

orally, 77 (42%) subcutaneously, and 25 (14%) both orally and subcutaneously. The corresponding figures for those who did not report any adverse reaction were 602 (41%), 765 (52%), and 112 (8%) ($\chi^2 = 10.82$, *df* = 2, *p* = 0.004).

The table summarises the cardiovascular adverse reactions. Chest pain was reported by 19 (83%) women and four (17%) men, of whom eight (35%) had taken sumatriptan orally, 11 (48%) subcutaneously, and four (2%) both orally and subcutaneously. The mean age of these patients was 44.0 (6.4) years. Of the 1704 patients who did not report chest pain and for whom data on administration were known, 675 (41%) had taken sumatriptan orally, 831 (51%) subcutaneously, and 133 (8%) (χ^2 with Yates's correction = 2.6, *p* = 0.27). Their mean age (43.8 (11.3) years) and the proportion of men and women (410 (24%) and 1294 (76%) respectively) were not significantly different from the values in the group reporting chest pain. The prevalence of chest pain associated with sumatriptan was 1.3% (95% confidence interval 1.2% to 1.5%).

Comment

Reports of angina pectoris and acute myocardial infarction with sumatriptan prompted us to estimate the prevalence of chest pain with this drug under everyday conditions. Dispensing general practitioners are a good source of information on adverse reactions to newly marketed drugs because of their excellent cooperation and direct access to data on dispensed drugs and disease in individual patients.

We intend to send a questionnaire to all patients who were treated with sumatriptan to investigate whether unreported adverse reactions occurred because the prevalence of chest pain in our study was lower than that in clinical studies.¹ For an adverse reaction to be recognised, however, patients have to tell their general practitioner. If they fail to do so the prevalence of adverse reactions will be underestimated when reactions are mild.

A recent angiographic study suggested that sumatriptan causes coronary artery vasoconstriction.⁵ That chest pain was observed both in our study and in similar reports² highlights the need for an extensive study, especially given the reported electrocardiographic abnormalities³ and myocardial infarction⁴ with sumatriptan. We therefore intend to set up a case-control study of patients with self reported chest pain to assess determinants of this adverse reaction.

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